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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/625,525	07/24/2003	Sang Seok Lee	8733.871.00-US	8162
30827 7590 01/22/2008 MCKENNA LONG & ALDRIDGE LLP 1900 K STREET, NW WASHINGTON, DC 20006			EXAMINER MCNALLY, DANIEL	
			ART UNIT 1791	PAPER NUMBER
			MAIL DATE 01/22/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/625,525	<b>Applicant(s)</b> LEE ET AL.	
	<b>Examiner</b> Daniel McNally	<b>Art Unit</b> 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 11/5/2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-5, 14-18 and 21-23 is/are pending in the application.
- 4a) Of the above claim(s) 21 and 22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 14-18 and 23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>12/19/2007</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-5, 1—18 and 23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 and 23 have been amended and now require "the at least one of the first and second elastic members" to be arranged between the fixing plate and the securing plate. The claims recite convex bending of the corresponding one of the upper and lower chamber units, and the at least one of the first and second elastic members are capable of applying restorative forces to the fixing plate and the securing plate to oppose deformation of the fixing plate and securing plate. It is unclear how elastic members between only the fixing plate and the securing plate could oppose deformation of the fixing and securing plates. Figure 7B shows the upper chamber unit (211) in the convex bending state; the elastic members (300) are located between the fixing plate (232) and the securing plate (231). The figure also shows the fixing plate is deformed along with the upper chamber unit, and the elastic members oppose deformation of the securing plate which is not deformed. In order to oppose deformation of the fixing plate it appears elastic members are required between the upper chamber unit and the fixing plate. As claimed, the apparatus only requires elastic members between the fixing plate

and the securing plate, and does not require elastic members between the chamber unit and the fixing plate. It is recommended the applicant actively claims elastic members between the chamber unit and the fixing plate.

***Claim Rejections - 35 USC § 103***

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1-5, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Satoshi et al (of record, previously cited) in view of Norton (of record, previously cited).

Satoshi et al. discloses a substrate bonding apparatus for manufacturing a liquid crystal display device comprising a base frame(3); a lower chamber unit (10) mounted to the base frame (paragraph 0013); an upper chamber unit (21) joinable to the lower chamber unit; an upper stage (S1) fixed to the upper chamber unit (21) for securing a first substrate (1b); a lower stage (T1) fixed to the lower chamber unit for securing a second substrate (1a). Satoshi discloses the upper and lower chamber units define an interior space capable of being sealed and evacuated, and wherein the upper and lower chamber units are capable of being convexly bendable (paragraph 0019). Satoshi discloses at least one of the upper and lower stages includes: a fixing plate (27) coupled to a corresponding one of the upper and lower chamber units; and a securing plate (28) for securing a corresponding one of the first and second substrates (see Figure 1). The reference is silent as to the presence of elastic members.

Norton discloses a pressing apparatus comprising a platen (16) and a face piece (19). The face piece comprises a surface that contacts the material worked upon. Norton also discloses placing springs (20) between the platen and face piece. The placement of the springs allows a compressive force to be applied to the material worked upon by the face piece while the platen is moved away from the material worked upon. The compressive force prevents the material worked upon from deforming (column 4, lines 62-75).

It would have been obvious for one of ordinary skill in the art at the time of invention to modify the apparatus of Satoshi to include springs as taught by Norton between the adjacent plates pressings on the worked material in order to prevent the worked material from deforming, and applicant should note that although neither reference explicitly states that the elastic members (108) exert restoration forces on the securing plate, the nature of elasticity would have lead one of ordinary skill in the art to understand that elastic members placed between the fixing plate and the securing plate, would have been capable of exerting restoration forces to the securing plate preventing deformation of the securing plate. For the purpose of examination it is assumed the fixing plate is deformed with the chamber unit and only the securing plate is prevented from deformation because the claim does not require elastic members located between the chamber unit and the fixing plate.

As to claim 2, Satoshi et al. discloses a substrate bonding apparatus capable of manufacturing a liquid crystal display device wherein the upper and lower chamber units are capable of being convexly bendable (paragraph 0019). As noted above the nature

of elasticity would have lead one of ordinary skill in the art to understand that elastic members placed between a fixing plate and a securing plate would have been capable of exerting restoration forces to the securing plate.

As to claim 3, Norton discloses a substrate bonding apparatus capable of manufacturing a liquid crystal display device wherein the plurality of elastic members include a coil spring (see Figure).

As to claims 4 and 5, examiner acknowledges that there is not explicit disclosure of conical or plate springs. However, examiner asserts the use of all three springs is well known. Absent any unexpected results specific to the instant invention one of ordinary skill in the art would have readily recognized to use an initially shaped-conical spring or a plate spring in place of a coil spring.

As to claim 14, Satoshi discloses the securing plate includes a plurality of electrostatic chucks (paragraph 0021).

As to claim 15, one of ordinary skill in the art at the time of invention would have been motivated to place the elastic members in correspondence with the plurality of electrostatic chucks such that the substrate is held in a parallel manner to a second substrate during the chucking process.

5. Claims 16-18 rejected under 35 U.S.C. 103(a) as being unpatentable over Satoshi and Norton and further in view of Kubota et al. (of record, previously cited).

Satoshi as modified discloses a bonding apparatus. The applicant is referred to paragraph 3 above for a detailed discussion of Satoshi as modified. Satoshi is silent as to the securing plate material. Kubota discloses a securing plate capable of being used

in a bonding apparatus for a LCD screen (column 1, lines 11-13), and further discloses that said securing plate could be made of stainless steel or aluminum (column 4, lines 56-60). Using steel or aluminum is advantageous because, as disclosed by Kubota et al., doing so, adds to the strength of the securing plate (column 4, lines 55-56).

Therefore, at the time of the invention it would have been obvious to a person of ordinary skill in the art to use a securing plate made of stainless steel or aluminum as taught by Kubota et al. above in the bonding apparatus of Satoshi. As to claim 18, although the reference is silent as to an exact thickness for the securing plate, Kubota et al. does disclose that it is advantageous to use a securing plate that has a high thickness to ensure good mechanical strength and proper handling (column 4, lines 49-56). As such, one of ordinary skill in the art would have understood to use a securing plate with a thickness of at least 40mm to ensure good strength and proper handling of the substrate.

6. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Satoshi et al (of record, previously cited) in view of Norton (of record, previously cited) and Matsushita [JP11-264991A] (of record, previously cited).

Satoshi as modified discloses a bonding apparatus. The applicant is referred to paragraph 4 above for a detailed discussion of Satoshi as modified. Satoshi does not disclose the securing plate having a plurality of holes.

Matsushita discloses a bonding apparatus comprising a surface plate (9) having suction holes therein for applying suction to a substrate. One of ordinary skill in the art at the time of invention would have readily recognized suction as a viable method of

securing a substrate to the securing plate. It would have been obvious to one of ordinary skill in the art at the time of invention to modify the securing plate of Satoshi by including a plurality of holes as taught by Matsushita in order to apply a suction force to a substrate.

***Allowable Subject Matter***

7. As previously indicated the prior art does not disclose elastic members between the chamber unit and the fixing plate, and between the fixing plate and the securing plate. As discussed above in paragraph 2 elastic members located in both positions, between the chamber unit and fixing plate and between the fixing plate and the securing plate, would oppose distortion of the fixing and securing plates. It is recommended the applicant amends claims 1 and 23 to recite elastic members are located between the chamber unit and the fixing plate as well as between the fixing plate and the securing plate. An amendment of the claims to clearly recite such location of the elastic members would overcome the above rejections.

***Response to Arguments***

8. Applicant's arguments filed 11/5/2007 have been fully considered but they are not persuasive. Applicant argues the cited references do not teach or suggest the combined features of the claims, mainly the combination of Satoshi and Norton do not show the use of elastic members to oppose deformation of the fixing plate and the securing plate. Due to the issue discussed above in paragraph 2 it is assumed the elastic members apply opposing forces to only the securing plate because it is not required that elastic members are between the chamber unit and the fixing plate. The



examiner maintains the previous rejections because the structure of the claimed apparatus does not appear to be any different from the apparatus of Satoshi modified by including elastic members on the side of the securing plate as taught by Norton.

***Conclusion***

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel McNally whose telephone number is (571) 272-2685. The examiner can normally be reached on Monday - Friday 8:00AM-4:30PM.

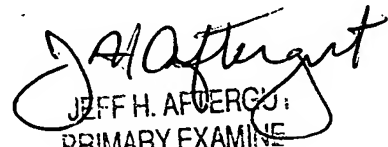
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Daniel McNally  
Examiner  
Art Unit 1791

  
JEFF H. AFTERGUT  
PRIMARY EXAMINER  
GROUP 1300

/DPM/  
January 15, 2008